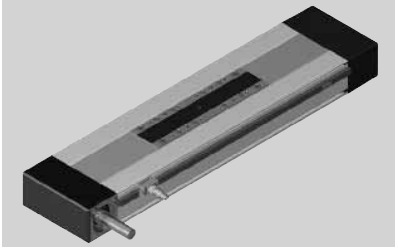
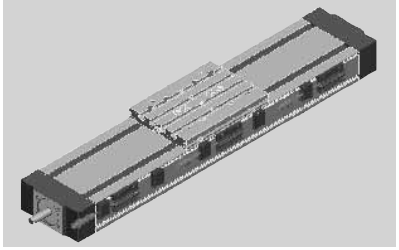
Switch mounting arrangements

Overview of switching systems

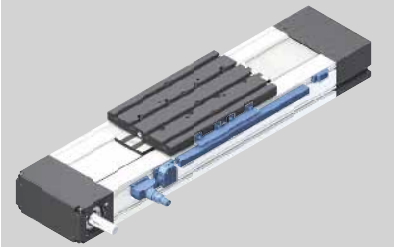
Magnetic field sensor



Magnetic field sensor with plug



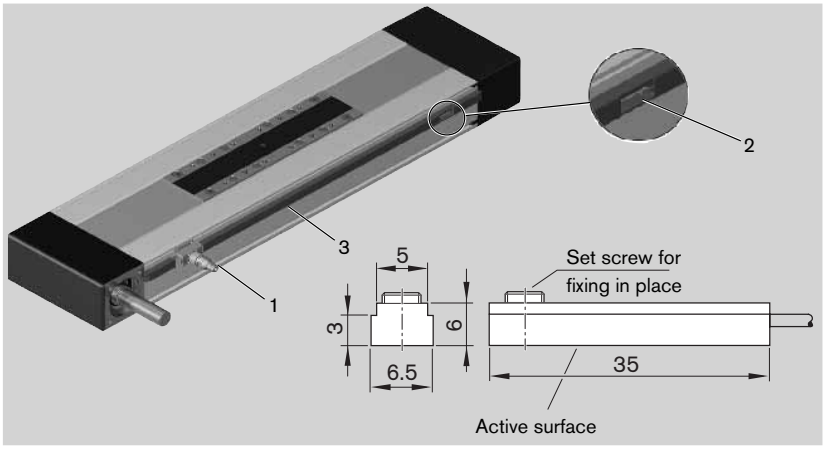
Mechanical and proximity switches



The following switch categories can be used with the Compact Module:
– Magnetic field sensor (Hall and Reed sensors)
– With CKR 25-200 mechanical and proximity switches can be used as well
The entire switching system must be mounted on one side of the Compact Module!
However, switches of different categories cannot be mounted together on the same side.

Magnetic field sensor

Hall and Reed sensor
1 Socket and plug
2 Switch
3 Mounting duct
(aluminum alloy, black anodized)



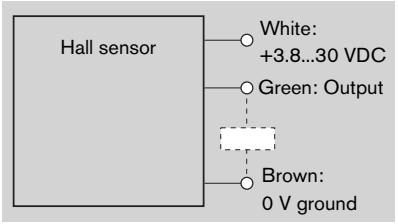
⚠ The magnetic field sensors are suitable for travel speeds up to 2 m/s. At higher travel speeds use mechanical/proximity switches for safety reasons (please inquire)!
Short stroke: Take the length of the switch and socket into consideration!

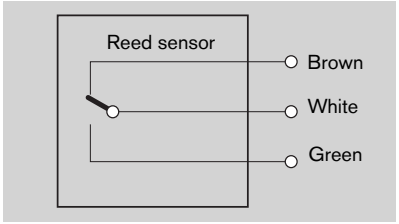
Magnetic field sensors with potted cable.
Version:
– Hall sensor (normally closed) or
– Reed sensor (change-over)
Mounting instructions:
Switches may be mounted only on one side of the Compact Module (left or right) and only after installing the Compact Module to the mounting base. A mounting duct is needed to fasten the switches.

Hall sensor	
Contact type	PNP - NC / NO
Operating voltage	3.8–30 V DC
Power consumption	max. 10 mA
Output current	max. 20 mA
Cable length	2 m (10 m upon request)
Housing protection class	IP 66
Short-circuit protection	No
Maximum travel speed	2 m/s

Reed sensor	
Contact type	Change-over
Switching voltage	max. 100 V DC
Switching current	max. 0.5 mA
Cable length	2 m (10 m upon request)
Housing protection class	IP 66
Maximum travel speed	2 m/s

Pin assignment
Important: 2 switching points!

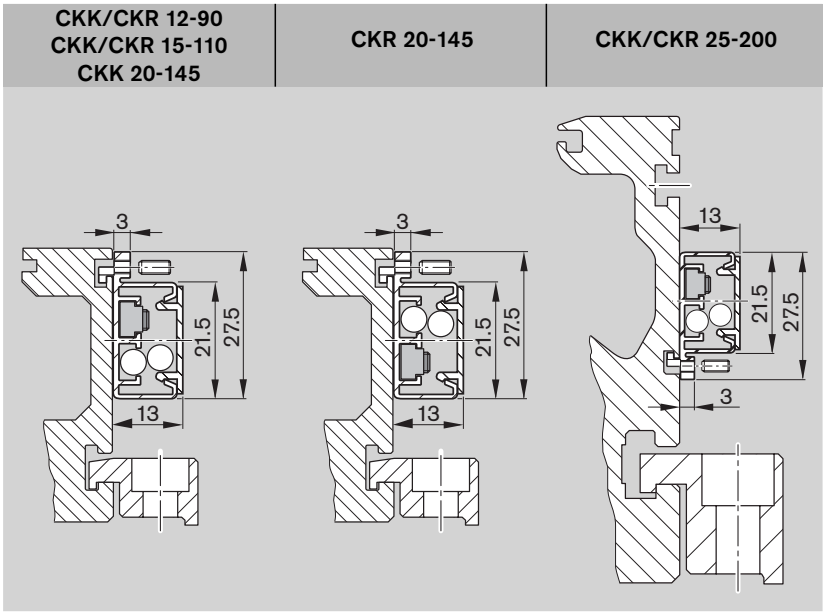




Mounting duct
Function:
– To attach and secure magnetic field sensors
– Cable routing

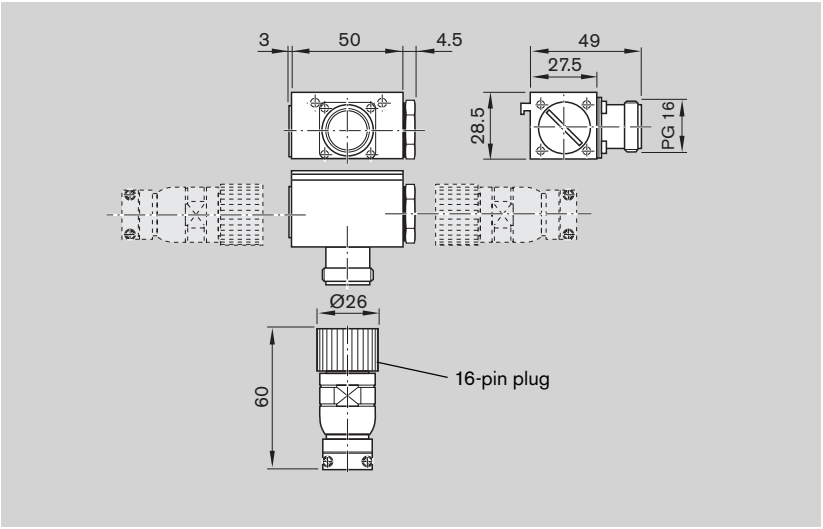
Mounting instructions:
The mounting duct is hooked into the T-slots of the module frame and secured with set screws.
Set screws are included.

The switches are slid into the upper T-slot (CKK/CKR 12-90, 15-110 and CKK 20-145) or into the lower T-slot (CKR 20-145, CKK/CKR 25-200) of the mounting duct and secured with set screws.



Socket and plug
Attach the socket on the side with the magnetic field sensor.

The socket and plug have 16 pins.
Socket and plug are not wired.
This allows optimal assignment of switch positions during start-up.
One plug is included.
The plug can be installed in three directions.



Ordering the magnetic field sensors and accessories

Refer to the following table for part numbers.
Accessories can also be ordered separately.

Item		Part numbers installation on: CKK/CKR all sizes
1	**Socket-plug**	R0375 400 00
2	**Magnetic field sensor**	
	– Reed sensor	R987 146 948
	– Hall sensor (PNP - NC)	R987 146 123
3	**Mounting duct**	R021CKDUCT

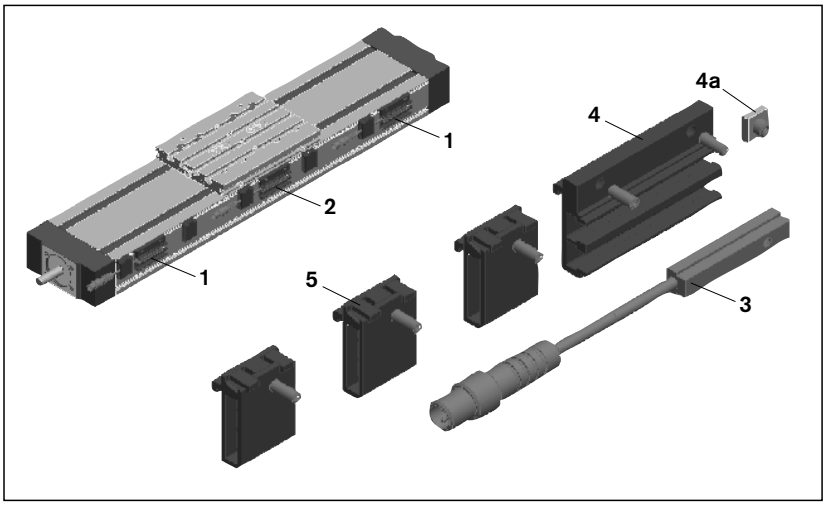
Switch mounting arrangements

Magnetic field sensor with plug

With magnetic field sensors, switch activation is direct (without switching cam). The switch positions can be adjusted freely over the entire travel range. Sensors may be mounted only on one side of the Compact Module (left or right) and only after installing the Compact Module to the mounting base.

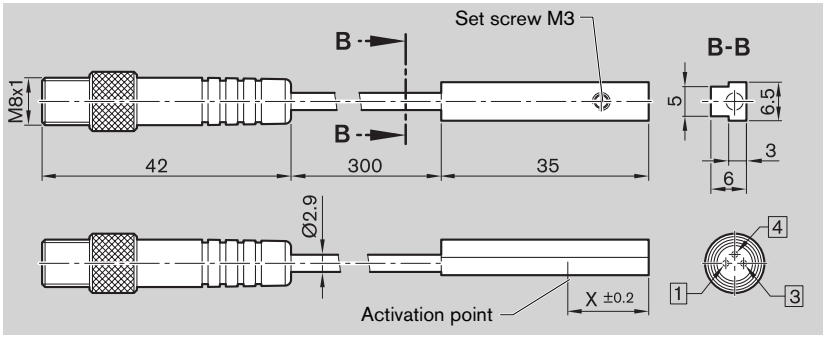
Switch positions:
1 Limitation at end of stroke (recommendation: Reed or Hall sensor)
2 Reference point in middle of stroke (recommendation: Hall sensor)

Sensor mounting assembly
consists of:
3 Sensor (Hall or Reed)
4 Sensor mount incl. set screws (loose) and square nut **4a**
5 Cable holder (3 units) incl. set screw (loose)



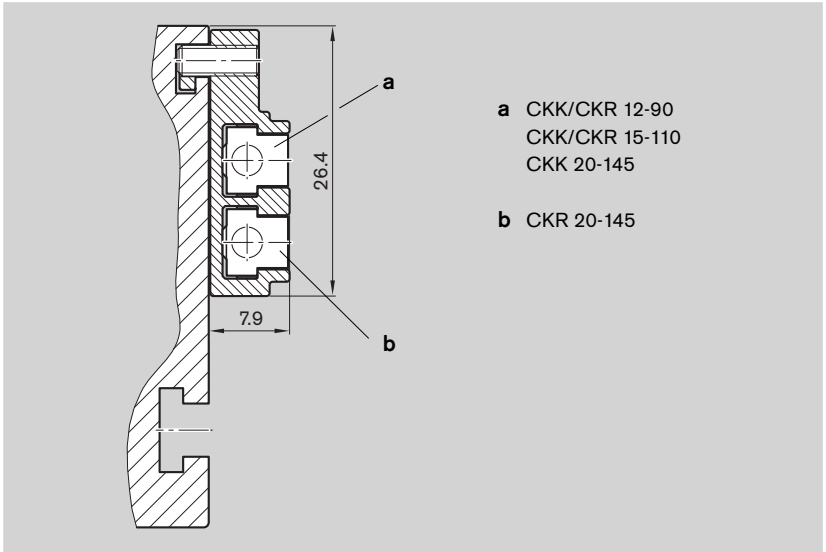
Version	Part number
Sensor mounting assembly with Reed sensor	R0375 300 07
Sensor mounting assembly with Hall sensor	R0375 300 08

Sensor configuration:



Sensor mount

A sensor mount (1) is required to attach the sensors. It is hooked into the upper slot on the Compact Module and secured with set screws (2).
The sensors are slid into the respective slot on the sensor mount and secured with set screws.
The square nut with set screw (3) serves as a positive stop for the sensor (switch position when changing sensors).
Parts are included with the sensor mounting assembly.

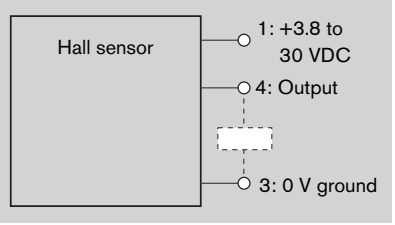


Technical data and ordering

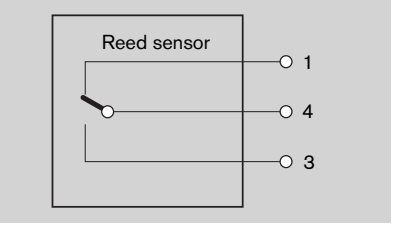
Part number	Hall sensor R3476 024 03
Dimension X	13.65 mm
Contact type	PNP - NC
Operating voltage	3.8 to 30 V DC
Power consumption	max. 10 mA
Output current	max. 20 mA
Housing protection class	IP 66
Short-circuit protection	No
Permissible travel speed	2 m/s
Housing material	Ultramid

Part number	Reed sensor R3476 023 03
Dimension X	9 mm
Contact type	Change-over
Switching voltage	max. 100 V DC
Switching current	max. 500 mA
Housing protection class	IP 66
Permissible travel speed	2 m/s
Housing material	Ultramid
Important: 2 switching points	

Pin assignment



– Hall sensor (PNP - NC contact)



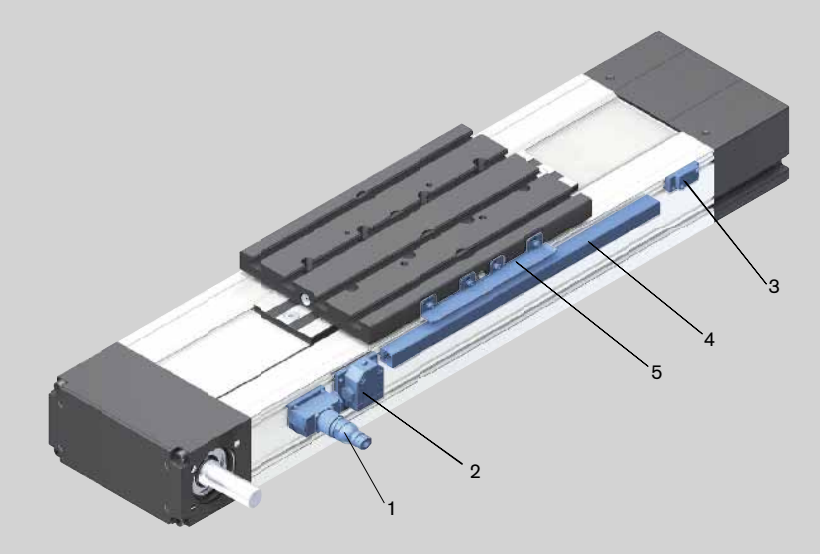
– Reed sensor (change-over)

Switch mounting arrangements

Mechanical and proximity switches

Mechanical and proximity switches on CKK/CKR 25-200

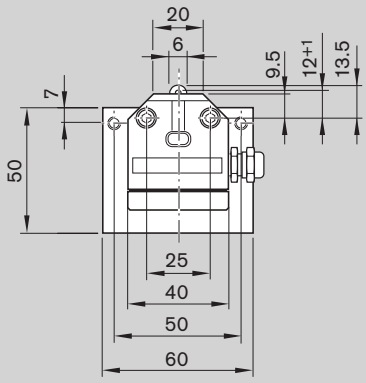
1 Socket and plug
2 Mechanical switch (with accessories)
3 Proximity switch (with accessories)
4 Cable duct (aluminum alloy)
5 Switching cam (for installation on connection plate only or with customer-designed solution)



⚠ **Short stroke: Take the length of the switch and socket into consid-**

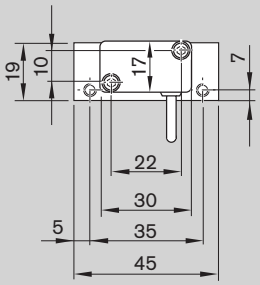
Mechanical switch (technical data)	
Repeatability	± 0.05 mm
Permissible ambient temperature	–5°C to +80°C
Enclosure	DIN 40050 IP 67
Duration of bounce	< 2 ms
Insulation	Group C according to VDE 0110
Rated voltage	250 V AC
Continuous current	5 A
Switching capacity at 220 V, 40-60 Hz	cosφ = 0.8 at 2 A
Contact resistance when new	< 240 mΩ
Connector	Screw connector
Contact system	Single-pole change-over
Switching system	Snap-action

Mechanical switch with mount

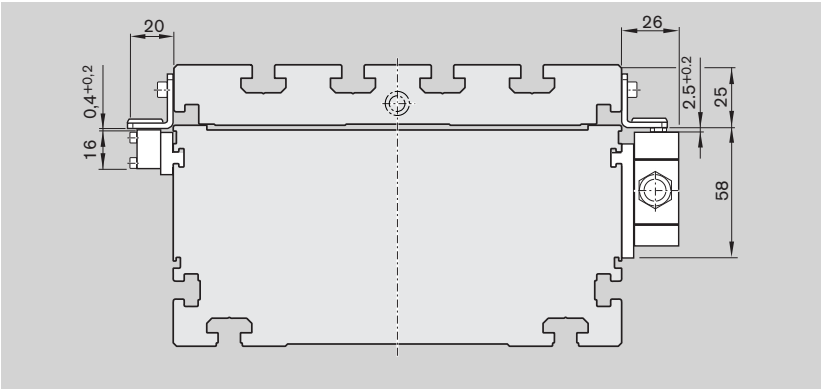


Proximity switch (technical data) Proximity switch with potted cable (3 x 0.14 mm² Unitronic)	
Housing form	NO
Minisensor	Form A DIN 41635
Operating voltage	10 ... 30 V DC
Residual ripple	≤ 10%
Load	200 mA
No-load current	≤ 20 mA
Switching frequency	max. 1,500 Hz
Temperature-related shift in make point	≤ 4 µm/K
Output signal steepness	≥ 1 V/µs
Repeatability of make point per EN 50008	≤ 0.1 mm
Cable length	3 m (10 m upon request)

Proximity switch with mount



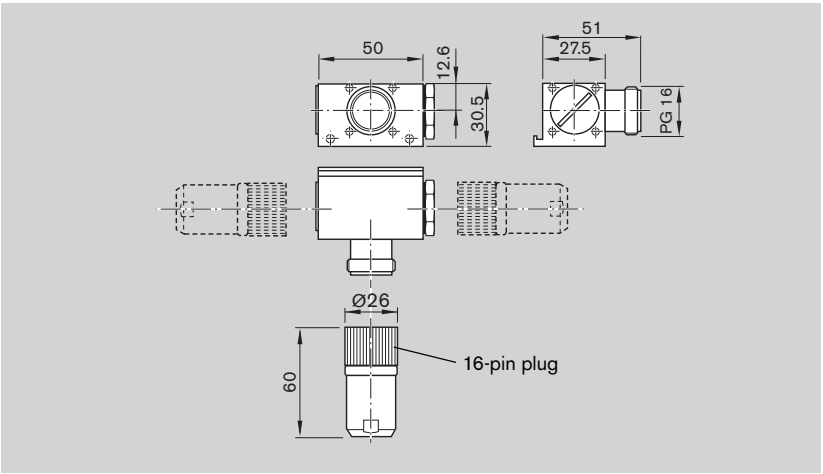
Switch mounting example



Socket and plug

- Attach the socket on the side with the most switches.

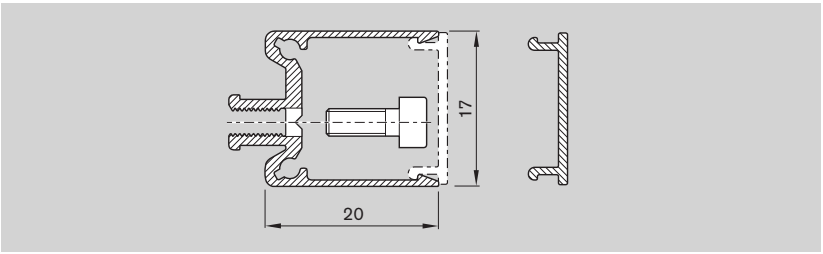
The socket and plug have 16 pins.
Socket and switch are not wired.
This allows optimal assignment of switch positions during start-up.
One plug is included.
The plug can be installed in three directions.



Cable duct

- The cable duct is fastened in the T-slots on the side of the frame. Fastening screws widen the profile and give the cable duct a secure hold.

The cable duct will accommodate up to two cables for mechanical switches or three cables for proximity switches.
Fastening screws and cable grommets are included.



Ordering the switches and accessories

Refer to the following table for part numbers.
Accessories can also be ordered separately.

Item		Part numbers for installation on CKK/CKR 25-200 Version with mechanical and proximity switches*
1	**Socket-plug**	R1175 001 53
2	**Mechanical switch with accessories**	R1175 001 51
	Mechanical switch alone	R3453 040 16
3	**Proximity switch**	
	– Mounting accessories	R1175 001 52
	– PNP - NC	R3453 040 01
	– PNP - NO	R3453 040 03
4	**Switching cam**	R1175 001 50
5	**Cable duct**	R021JDUCTL

*) Switching cam installation on connection plate only or with customer-designed solution